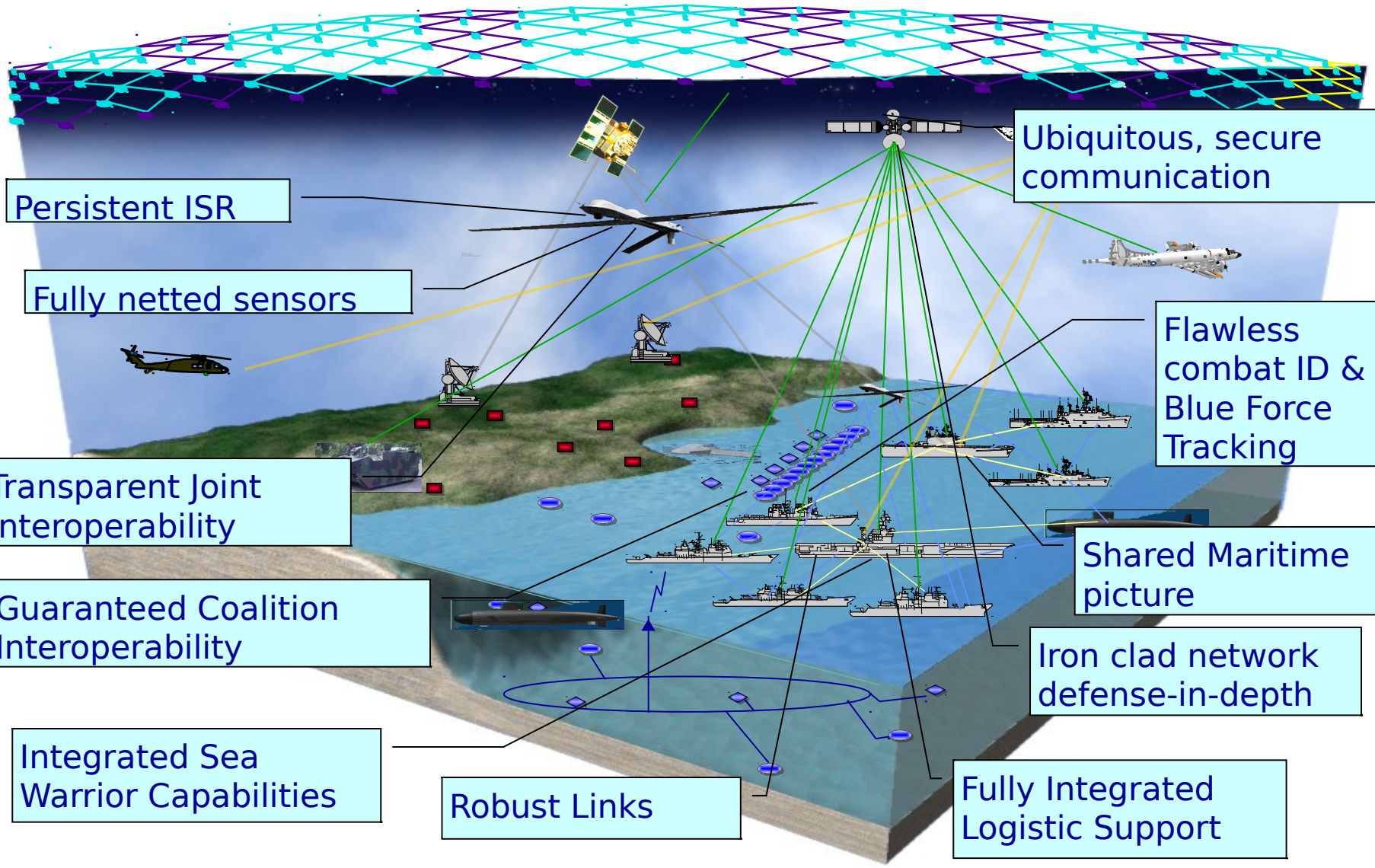
Navy Vision For FORCEnet To Support Joint Functional Capabilities

RDML(S) Betsy Hight (CNO N61R)

NDIA Science & Engineering Technology Conference

22 April 2004

FORCEnet Goals Within Sea Power 21



FORCEnet Overview

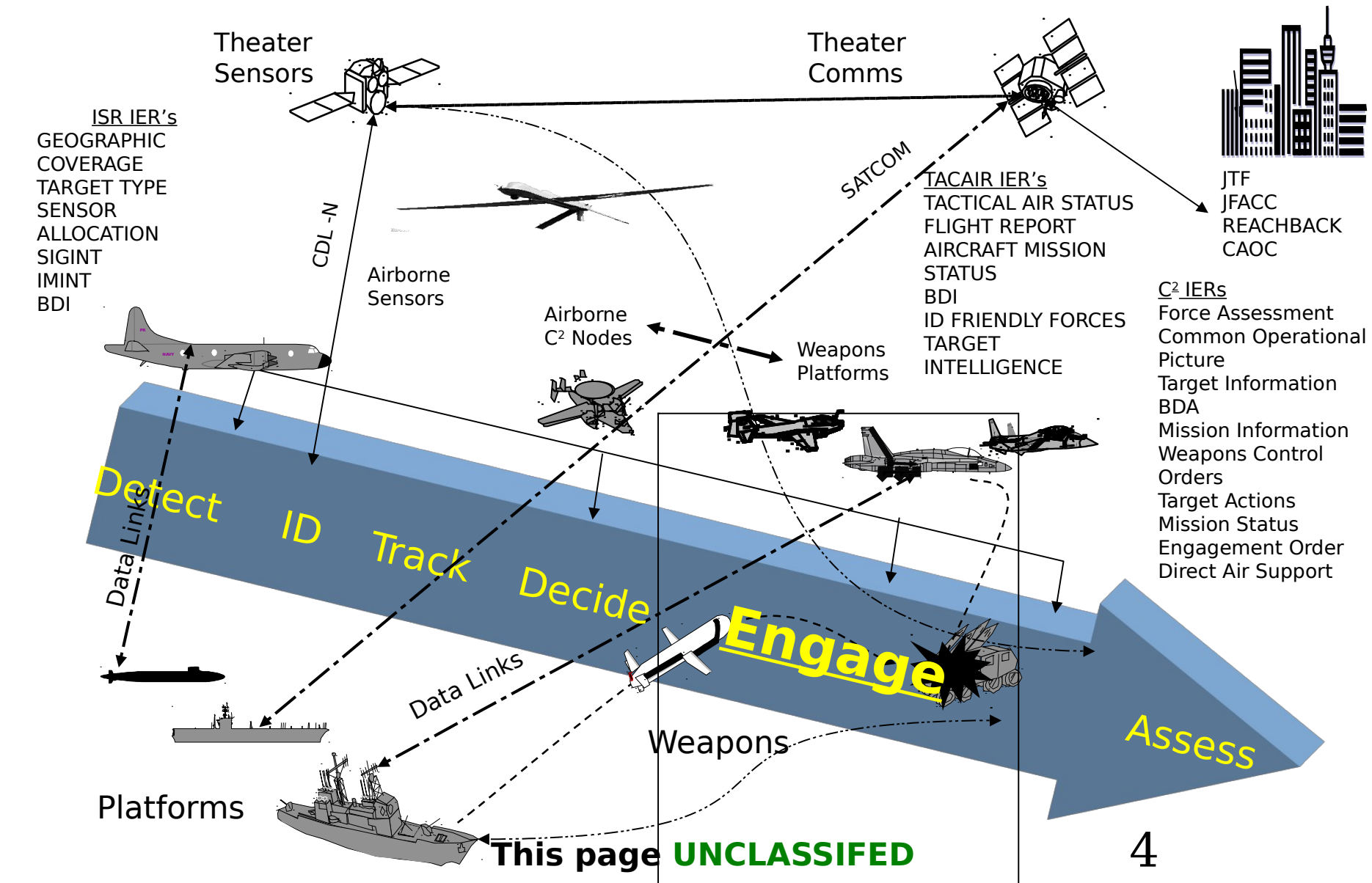
FORCEnet is not:

- An acquisition program, system, thing, or “just a net”

FORCEnet is the USN/USMC alignment & integration effort for:

- DoN/DoD Transformation, Joint Interoperability, and Network Centric Warfare
- Innovation, demonstration, testing, and assessment to achieve CNO’s goal of “Speed to Capability”
- Operational Requirements, Architectures, Standards, Compliance, and Oversight of Naval Programs to achieve Joint Warfighting Capability

FORCEnet for the Warfighter (Sensor to Shooter)



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FORCEnet: Naval Link to Joint Capabilities

Naval	Joint
Sea Strike	Precision Engagement Dominant Maneuver
Sea Shield	Full Dimensional Protection
Sea Basing	Dominant Maneuver Focused Logistics
FORCEnet	Joint C4ISR

FORCEnet Initial Capabilities Document

FORCEnet Consolidated Compliance Checklist

Joint Operating Concepts

Joint Functional Concepts

Capabilities FORCEnet must provide to support the GIG and enable Naval Power21

ISR
C2
Applications
Battlespace Awareness
Focused Logistics
Comms & Information Distribution

Observed Trends

- **Increased Technology Capabilities**
- **Increased Reliance on Commercial Sources**
- **Increased Bandwidth Needs**
- **Increased Need For Joint Interoperability**

The DoD Plan: Transition to Joint Network Centric Architecture

Today

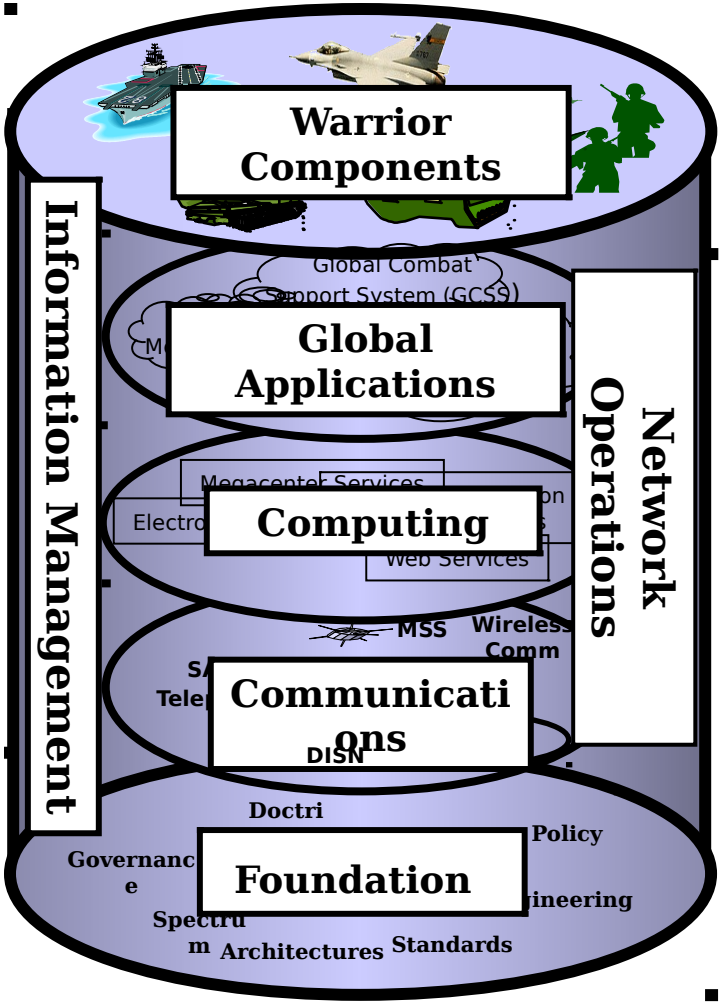
Stovepipe Applications
ndependent Frameworks
Government Standards
Federated Architectures
ultiple Levels of Security
olated Coalition Enclaves

Mid-Term

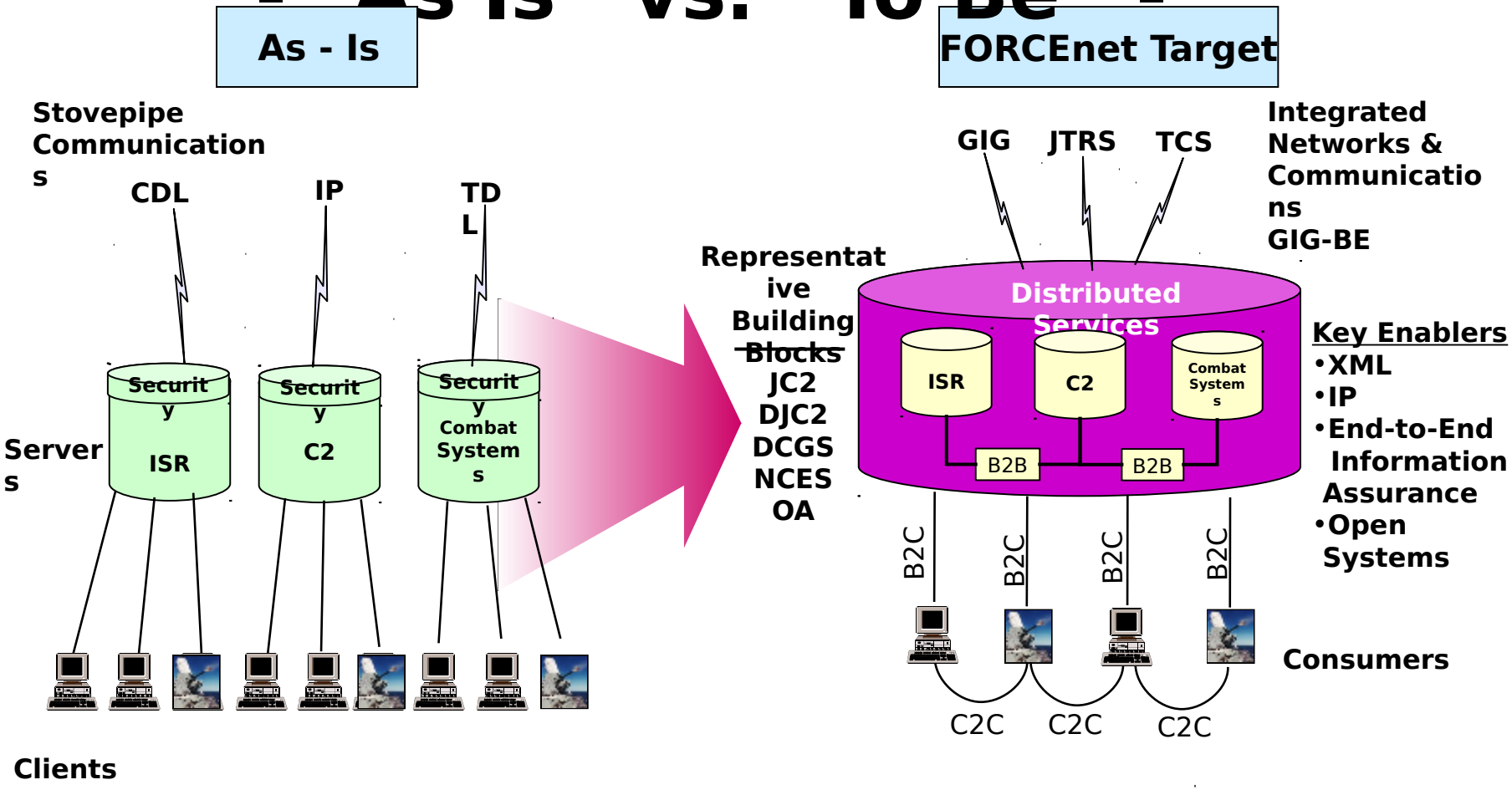
Common Applications
Common Frameworks
Commercial Standards
Federated Architectures
Multiple Levels of Security
Multiple Coalition Enclaves

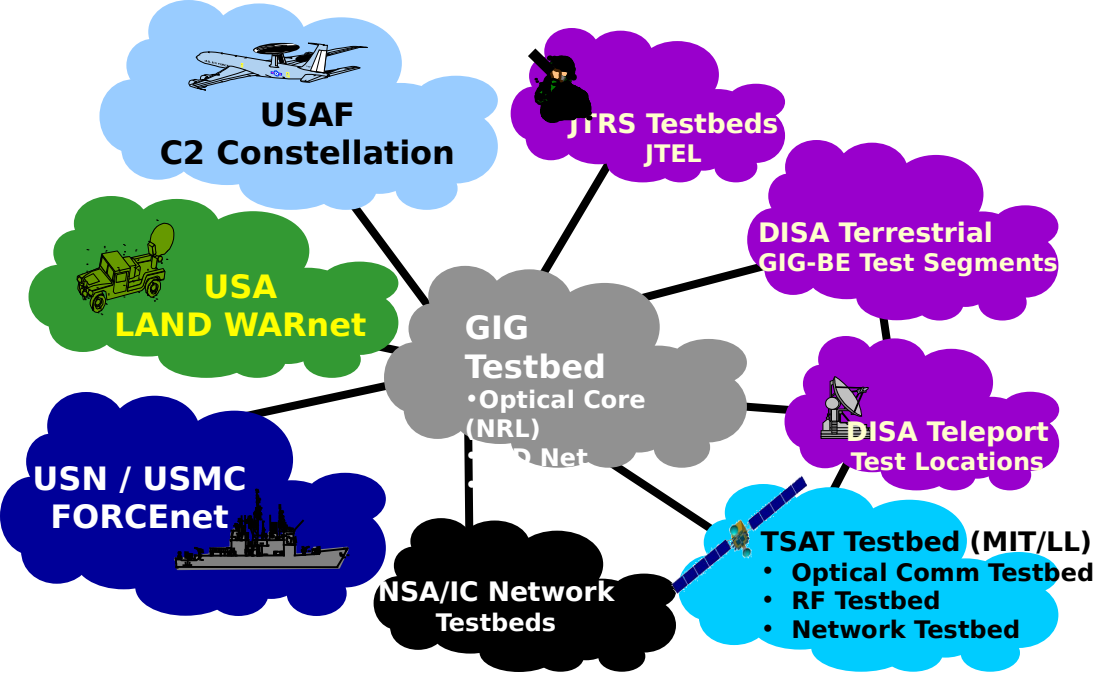
End-State

Common Applications
Common Frameworks
Commercial Standards
Enterprise Architecture
Multi-Level Security
Multi-National Info Sharing



FORCEnet Architecture Transition
- “As Is” vs. “To Be” -





Joint RAPTOR 04-1

Joint Distributed Services

GOAL

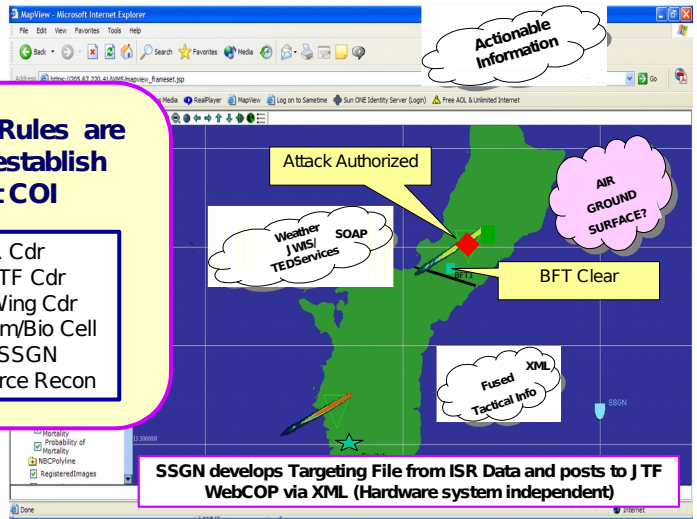
Technical evaluation of ***JOINT tactical use of distributed services*** that enable increased Joint situational awareness, improved TST timeline (TPPU vs. TPED)

Mission

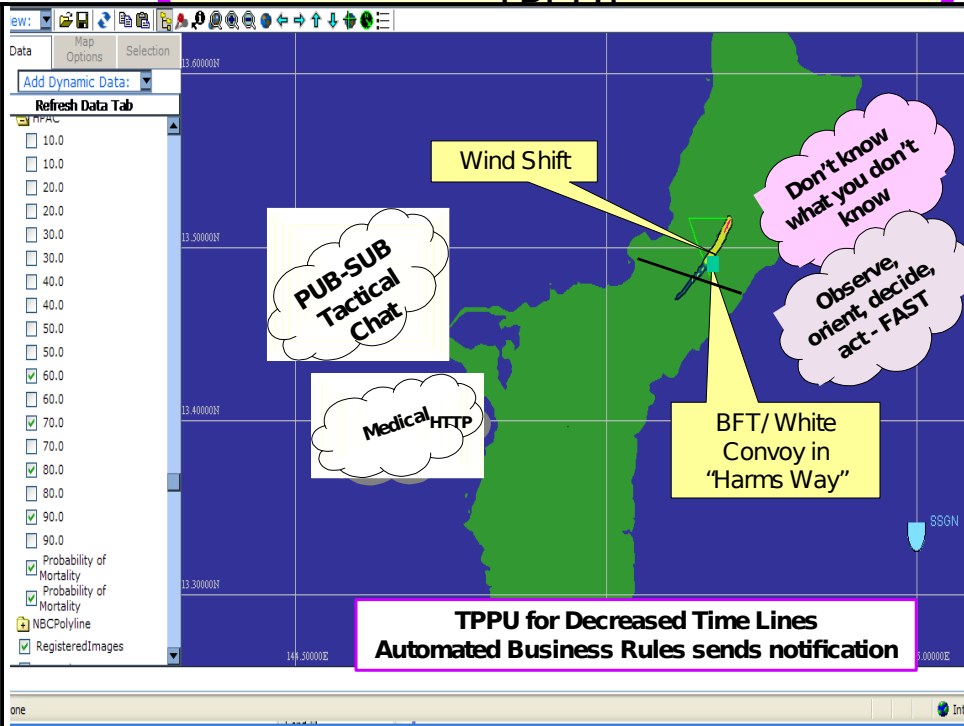
1. **Neutralize Terrorist Leadership**
2. **Eliminate any chemical threat discovered (with minimal collateral damage)**

Business Rules are used to establish Joint COI

AOR Cdr
ESG/JTF Cdr
USAF Wing Cdr
Army Chem/Bio Cell
Navy SSGN
USMC Force Recon

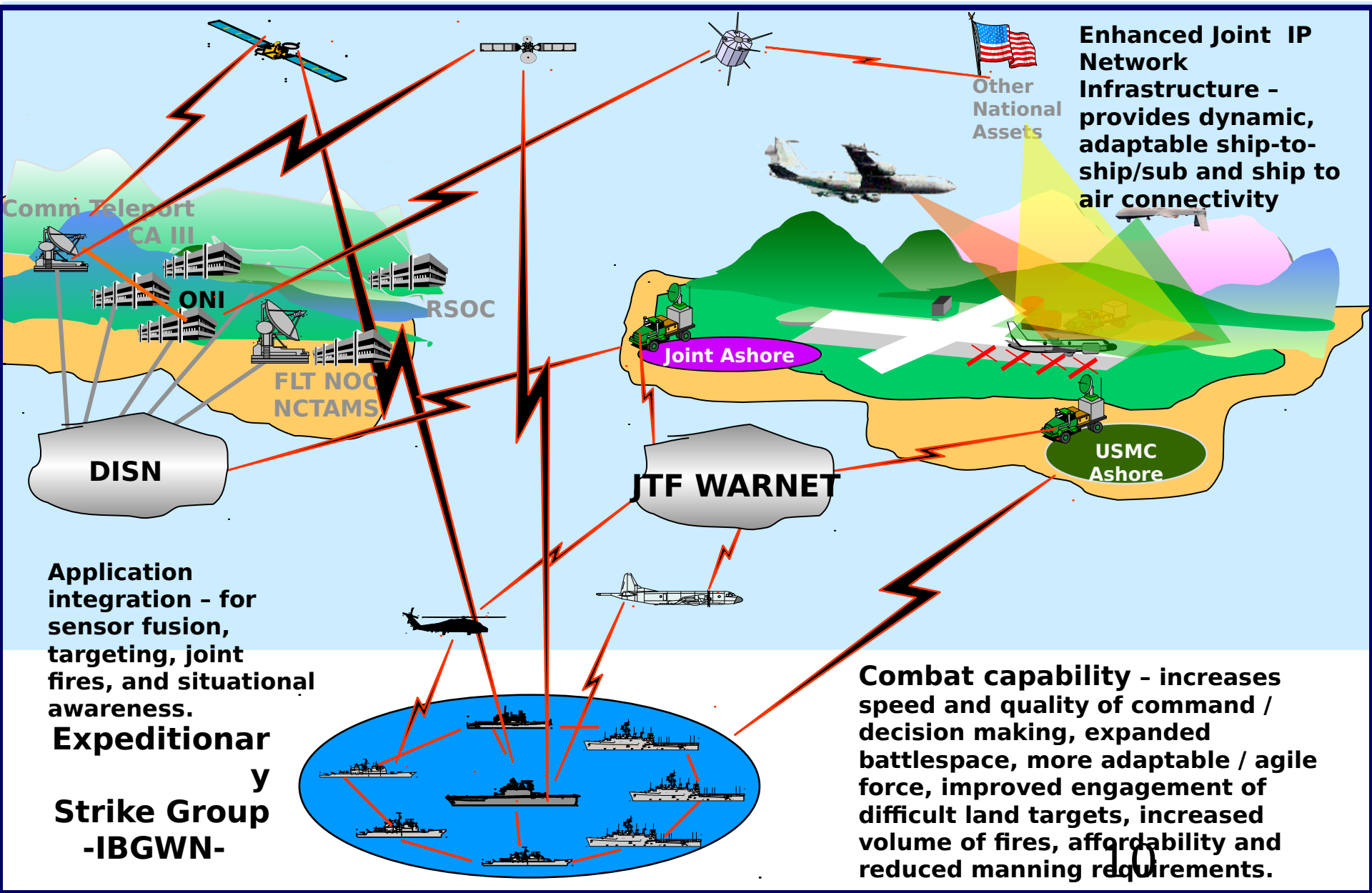


SSGN develops Targeting File from ISR Data and posts to JTF WebCOP via XML (Hardware system independent)

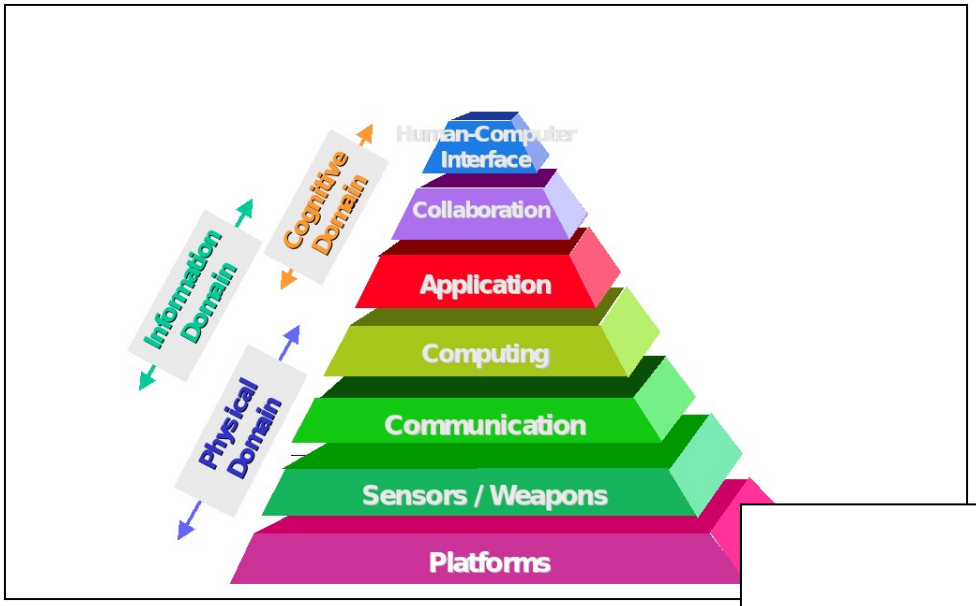


TPPU for Decreased Time Lines
Automated Business Rules sends notification

Trident Warrior 03


Other National Assets
Enhanced Joint IP Network Infrastructure – provides dynamic, adaptable ship-to-ship/sub and ship to air connectivity
Comm Teleport
CA III
ONI
RSOC
FLT NOC
NCTAMS
Joint Ashore
USMC Ashore
DISN
JTF WARNET
Application integration – for sensor fusion, targeting, joint fires, and situational awareness.
Expeditionary Strike Group -IBGWN-
Combat capability – increases speed and quality of command / decision making, expanded battlespace, more adaptable / agile force, improved engagement of difficult land targets, increased volume of fires, affordability and reduced manning requirements.

Composeable Warfighting Capability Vision

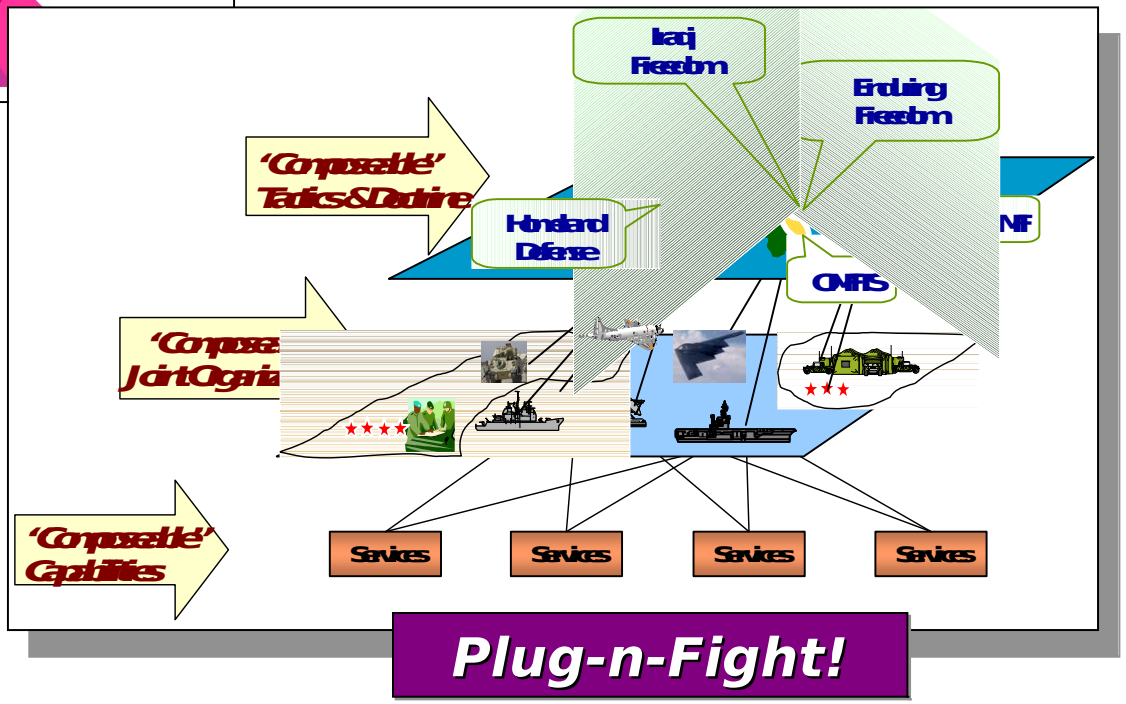


Changing the way we fight

"Composeability" -- The Ability to Select "On the Fly" From a Vast Network, the Specific Information Resources Which Are Best Suited to Solving a Particular Problem or Providing Specific Information

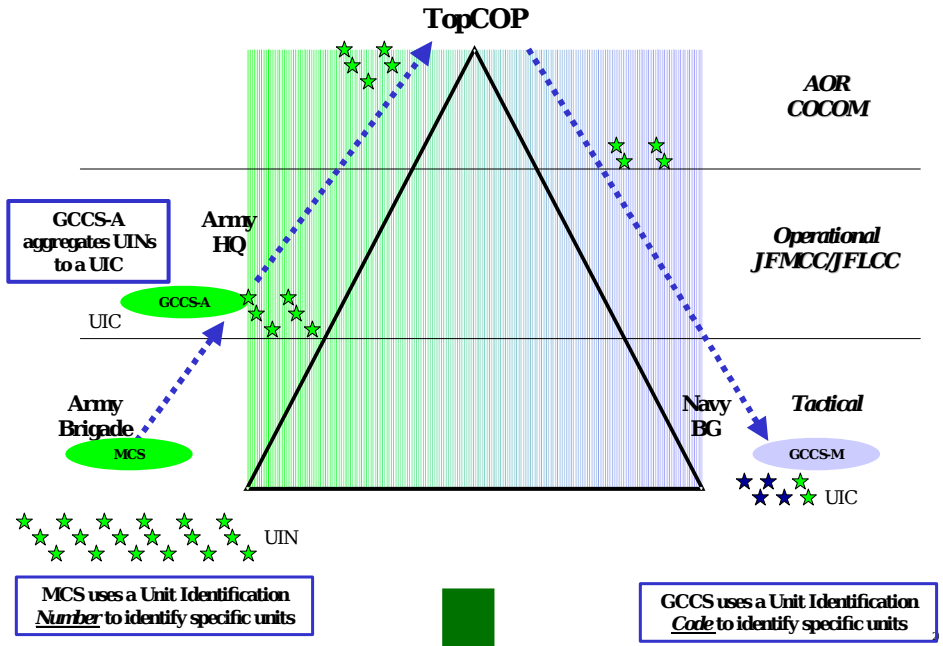
"On the Fly" -- Sources Will Change With the Information Needs of the Scenario

Distributed Networks

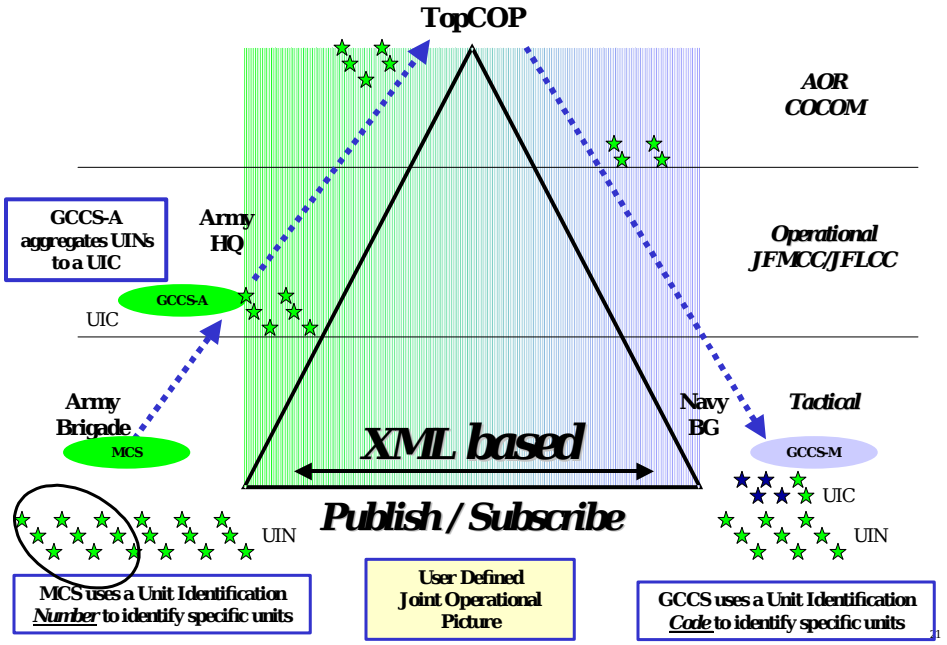


Composeable Warfighting Capability Benefit

Blue Force Situational Awareness "AS IS"



Blue Force Situational Awareness "TO BE"



The FORCEnet S&T Process
- Delivering Increased Warfighting Capability to the Fleet -

CFFC

Articulate Fleet Requirements/ Concepts (NWDC/NNWC)

SYSCOMS

Integration of S&T into POR

OPNAV

Validate FORCEnet Requirements (N61)
Balance Capabilities (N704/N706)

ONR

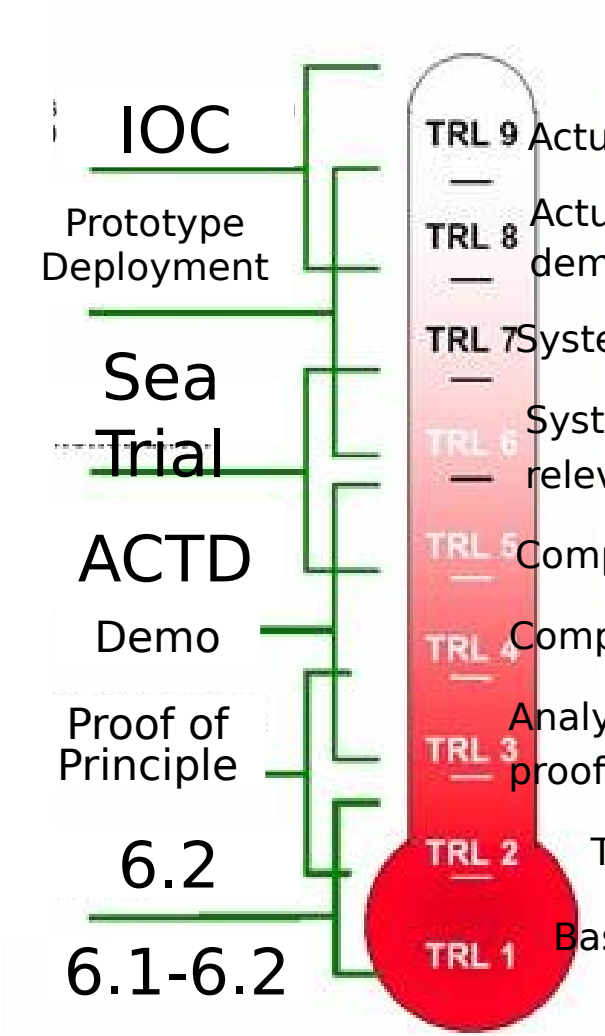
Identify S&T challenges (ONR Fn WG/IPT)
Develop S&T Strategy

NWDC (and SYSCOMS)

Fleet Experimentation (Sea Trial)
Lab Experimentation
Integrated Product Demonstration

FORCEnet Support of Technology Transition

- Technology Readiness Levels/DoD 5000.2-R -



TRL 9 Actual system proven through successful mission operations

TRL 8 Actual system completed and qualified through test and demonstration

TRL 7 System prototype demonstration in an operational environment

TRL 6 System/subsystem model or prototype demonstration in a relevant environment

TRL 5 Component and/or breadboard validation in relevant environme

TRL 4 Component and/or breadboard validation in laboratory environn

TRL 3 Analytical and experimental critical function and/or characterist proof of concept

TRL 2 Technology concept and/or application formulated

TRL 1 Basic principles observed and reported

Recent Technology Success Story

Knowledge Web Technologies

- Improves speed of command by the timely dissemination of multi-media information to the operational commander.
- Information is disseminated in a distributed command environment (30-60 min vice 8-24 hrs).
- Provides near real-time SA in a distributed command environment (15 min updates vice 4-8 hrs)

Knowledge Desks For USS Carl Vinson TFCC

- Leveraged Navy initiatives on Web enablement and applied Open Standards for Web Services and Navy and Industry Standard Collaboration Tools to improve Asynchronous, Distributed C2 and Speed of Command.

Transitioned to GCCS-M and Operational in OEF and OIF

Critical Technologies to Address Capability Gaps

- **Robust, high throughput connectivity**
- **Large, pervasive sensor and reconnaissance networks for detection, identification, and tracking of difficult and time sensitive targets**
- **Automated exploitation of information and data**
- **MLS solutions for networking and common operational & tactical picture**

Long Term S&T Investment

FORCEnet Capabilities	ONR Discovery and Invention Focus
Distributed, Collaborative Command and Control	**•Flexible command structure to enable optimum speed and precision of decision making**
Adaptive / Automated Decision Aids	**•Improving the assimilation of information.**
Dynamic, Multi-path and Survivable Networks	**•Low-power, high capability computer/communications technology • Information Assurance • Mission-focused network Quality of Service • Underwater networks**
Multi-tiered, Sensor & Weapon	**•Automated integration of disparate sensors and sources of information including metadata**
Human-Centric	**• Integration and presentation of**

Additional S&T Needs

- Batteries
- Multi-Beam Antennas
- LPD/LPI of RF Emissions
- Knowledge Management Tools
- Open Architecture/Standards-based Computing
- Efficient Bandwidth Utilization
- Sailor-friendly Information Assurance Tools
- Effective Data Strategy

Summary

- Joint interoperability and Network Centric Warfare are primary drivers
- Technology is a primary enabler
- Joint Operating and Functional Concepts are "Rules of the Road"
- Service/Program Compliance is an imperative
- Industry is a primary contributor and partner

Your participation is critical to the success of FORCEnet